Commonwealth of Kentucky
Division for Air Quality

PERMIT STATEMENT OF BASIS

FINAL
Conditional Major, Construction/Operating
Permit: F-06-020 R1
Marathon Petroleum Company, LLC
230 East 33rd Street, Covington, KY 41015.
September 18, 2007
IL-Won Shin, Reviewer
SOURCE I.D. #: 21-117-00022
SOURCE A.I. #: 2479
ACTIVITY #: APE20070003

SOURCE DESCRIPTION:

Marathon Petroleum Company, LLC (MPC) owns and operates a terminal in Covington, Kentucky. The terminal receives product by barge, stores the product in tanks, and then loads the product to tank trucks for distribution.

On September 9, 2005, MPC submitted letters to the Division requesting the addition of alternate control devices for the terminal. MPC also submitted a new application on January 9, 2006. In addition, MPC submitted a New Source Performance Standard (NSPS) "Reconstruction" Notification for Tank 324 and NSPS Modification Determination for Tank 29-320 on February 27, 2006. Corrected distillate loading emission factors and the insignificant activity of pump modification were submitted on April 20, 2006 and May 12, 2006, respectively. All of these change for the terminal were permitted under Kentucky air operating permit F-06-020.

The Covington Terminal is a bulk storage facility that receives gasoline, fuel oil, and kerosene by barge and stores the products in above ground storage tanks (note that jet fuel is considered a subset of kerosene). Occasionally, a tank truck loaded with gasoline or other product may be returned and off-loaded into a storage tank. However, this is not a routine operation. Ethanol, additives, and diesel dye are received by tanker truck and are injected into the product at the loading racks. All products are shipped out by tank trucks, which are loaded at the loading racks. This terminal also has the capability of off-loading to barges in cases of emergencies. This back-loading is not a routine operation at the Covington Terminal.

Covington consists of three loading racks. The North (#1) loading rack (**Emission Point, EP 013**) consists of two bottom-loading bays that are vented to a vapor recovery unit. The South (#2) loading rack (**EP 014**) currently consists of two uncontrolled top-loading bays, and the East (#3) loading rack (**EP 015**) consists of one uncontrolled top-loading bay. Gasoline is loaded at the North rack, but not the South or East.

MINOR PERMIT REVISION

On September 12, 2007, MPC submitted the application to the Division for minor permit revision on replacing existing distillate truck loading racks (**EPs 014 and 015**) with a new distillate loading rack at the Covington Terminal. These racks will be replaced with a new two-bay bottom-loading rack (**EP 014R**) with 8 loading arms, also in distillate / kerosene / diesel service. The project also

includes a new 1,500-gallon red dye tank, several new pumps, piping changes, and the relocation of several existing tanks. The changes that will affect air emission units are listed below:

- Replace #2 and #3 Tank Truck Rack with new Tank Truck Rack (distillate / kerosene / diesel service);
- Add a new 1,500 gallon additive Tank 345 (insignificant activity);
- Relocate existing Tank 330 (distillate / kerosene / diesel service);
- Relocate existing additive Tanks 336, 342, and 343 (insignificant activity);
- Remove 6 pumps and replace with 5 larger pumps (distillate / kerosene / diesel service); and
- Piping changes and pump upgrades associated with existing Tank 319 (distillate / kerosene / diesel service).

Temporary jumper lines in distillate / kerosene / diesel service will be used during construction until the new rack is operational. It is important to note that none of the equipment used for loading gasoline will be changed.

The projected maximum annual emissions from the new truck rack, pumps, and additive tank are summarized in Table 1. Emissions were calculated using U.S. EPA AP-42 emission factors, EPA's Tanks 4 software, and API fugitive emission factors. Maximum distillate and additive throughputs were estimated using projected maximum market demands.

Table: Emission Increases (not including project decreases)

Emission Point	Description	VOC Emissions (tons/yr)	Total HAP Emissions (tons/yr)
014R	New Tank Truck Loading Rack	3.52	0.04
017	Eight New Loading Arms Five New Pumps Associated New Valves, Meters, Connectors	0.10	0.001
Insignificant Activity	New Additive Tank 345	0.0003	0.000003
008	Relocated Existing Tank 330	No emissions change	No emissions change
Insignificant Activity	Relocated Existing Tanks 336, 342, 343	No emissions change	No emissions change
Total		**3.62**	**0.04**

The facility also has small oil-water separators and other miscellaneous equipment.

A vapor recovery unit (VRU) is the primary control for the North (#1) loading rack. Vapors vented during loading are adsorbed onto an activated carbon bed. When the bed becomes saturated, it is regenerated. Regeneration is achieved by absorbing the recovered gasoline vapors off of the beds with liquid gasoline. The VRU has two beds. One carbon bed removes gasoline vapors while the other bed is being regenerated. After a period of time, the beds will switch.

On occasion the VRU may need to be down for maintenance. Because emissions control is required by 40 CFR 60 Subpart XX, MPC has the ability to use backup control devices in order to eliminate long term interruptions of terminal loading operations. The Covington Terminal has one backup emission control device. The backup emission control is portable vapor combustion units (VCU) owned by MPC. MPC owns several of these portable oxidizers, which are regularly tested and maintained by the company for use as backup emission controls at their terminals. The September 9, 2005 letter from MPC to the Division included documentation that these units will also meet the Subpart XX control requirements.

COMMENTS:

Type of control and efficiency:

- A vapor recovery unit (VRU) is the primary control for North (#1) loading rack emissions with 99.88% efficiency.

- The backup emission control is portable vapor combustion units (VCU).

Emission factors and their source:

MPC has calculated maximum emissions from the terminal using estimated future maximum throughputs. Maximum product throughputs were estimated using predicted future maximum market demands, and then increased by a substantial safety factor to give conservative estimates. Tank emissions calculations are performed by the TANK 4.0 software program. Loading rack totals are based on VRU stack test results for gasoline and AP-42 for fuel oil.

Applicable regulations:

40 CFR 60 Subpart XX, *Standards of Performance for Bulk Gasoline Terminals*. Per Section 60.500(a), this rule applies to gasoline loading to gasoline tank trucks. It does not apply to barge loading. Gasoline is only loaded at the North (#1) loading rack. The rule limits loading emissions to less than 35 mg/l of gasoline loaded. A compliance test was performed on October 19, 2001, which demonstrated compliance. The test indicated a 1.5 mg/l emission rate.

40 CFR 60 Subpart Kb, *Standards of Performance for Volatile Organic Liquid Storage Vessels (Including Petroleum Liquid Storage Vessels) for Which Construction, Reconstruction, or Modification Commenced After July 23, 1984*. Per Section 60.110b(a), the rule applies to storage vessels with capacities greater than 75 m^3 (19,800 gal) that are used to store volatile organic liquids, and that commenced after July 23, 1984. Also, Section 60.110b(b) of the rule exempts storage vessels with a capacity greater than or equal to 151 m^3 (39,890 gal) storing a liquid with a

maximum true vapor pressure less than 3.5 kPa or with a capacity greater than or equal to 75 m^3 but less than 151 m^3 storing a liquid with a maximum true vapor pressure less than 15.0 kPa. Several tanks at the terminal are subject to the emission control requirements of the rule. These tanks use internal floating roofs to achieve compliance.

401 KAR 59:050, *New storage vessels for petroleum liquids*. Because Kenton County was designated as ozone not-attainment, under Section 1(1) and 1(2) of the rule a tank could be subject to the rule if its capacity is greater than 580 gallons, it is used to store petroleum liquids not including fuel oils #2 - #6, gas turbine fuel oils #2GT - #4GT, and diesel fuel oils #2D - #4D, and is either:

1. Less than 40,000 gallons and commenced between April 9, 1972 and July 24, 1984;
2. Less than 10,567 gallons and commenced after July 24, 1984; or
3. Greater than 40,000 gallons and commenced between April 9, 1972 and July 24, 1984.

Tanks 330 and 338, insignificant additive tanks 336, 340, 341, 343, 344, and insignificant used motor oil tank HA-1-2 fall into the second category. Under Section 3(2), any of these tanks storing liquids with a maximum true vapor pressure greater than 1.5 psi are required to have a permanent submerged fill pipe. Distillate/kerosene/diesel and used motor oil have maximum true vapor pressures well below 1.5 psi. Therefore, tanks 330 and HA-1-2 have no requirements under the rule.

401 KAR 61:050, *Existing storage vessels for petroleum liquids*. Because Kenton County was designated as ozone not-attainment, under Section 2(1) of the rule a tank could be subject to the rule if its capacity is greater than 580 gallons, it commenced before April 9, 1972, and it is used to store petroleum liquids not including fuel oils #2 - #6, gas turbine fuel oils #2GT - #4GT, and diesel fuel oils #2D - #4D.

Tanks 319, 321, 322, and 331 are subject to the rule. Under Section 3(1) of the rule, tanks with capacities greater than 40,000 gallons storing liquids with maximum true vapor pressures greater than 1.5 psi and less than 11.1 psi are required to be equipped with a floating roof. Gasoline tanks 319 and 321 are subject to these requirements. Under Section 3(3) of the rule, tanks storing liquids with a maximum true vapor pressure greater than 1.5 psi are required to have a permanent submerged fill pipe. This applies to all of the above tanks except Tank 322, since distillate/kerosene/diesel have maximum true vapor pressures well below 1.5 psi. Therefore, tank 322 has no requirements under the rule.

<u>Regulations not applicable</u>:

40 CFR 63 Subpart R, *National Emission Standards for Gasoline Distribution Facilities*. Per Section 63.420(a)(2) of the rule, the regulation applies only to facilities that are part of a major source of HAP emissions. The terminal is a minor HAP source, since maximum HAP emissions are significantly less than 22.5 ton/yr total HAP and 9 ton/yr individual HAP. Therefore, the rule does not apply.

40 CFR 63 Subpart Y, *National Emission Standards for Marine Tank Vessel Loading Operations*. The marine vessel loading operations are not an affected source as defined at 40 CFR 63.561. Section 40 CFR 63.561 defines sources with emissions less than 10 and 25 tons to be major

sources with HAP emissions from marine tank vessel loading operations less than 10 and 25 tons. The terminal is not a major source of HAP. Also, pursuant to 40 CFR 63.560 Section (b)(2), sources with aggregate marine tank vessel loading throughputs less than 10 million barrels of gasoline annually and less than 200 million barrels of crude oil annually are not subject to the rule. Barge back-loading at the terminal is not a routine operation, and these throughput levels will never be approached.

401 KAR 59:101, *New bulk gasoline plants*, and 401 KAR 61:056, *Existing bulk gasoline plants*. These rules apply to facilities that use tank trucks, trailers, or other mobile non-marine vessels for both incoming and outgoing gasoline transfers. The Covington terminal receives its gasoline supply by pipeline. Therefore, these rules do not apply. (Note that occasionally a tank truck loaded with gasoline or other product at the terminal is returned to the terminal for off-loading, but pipeline is the sole source of the terminal's gasoline supply).

401 KAR 61:055, *Existing loading facilities at bulk gasoline terminals*. This rule does not apply since the gasoline loading rack (North #1 Rack) was commenced after June 29, 1979. Instead, the North #1 Rack is subject to 40 CFR 60 Subpart XX.

401 KAR 59:095, *New oil-effluent water separators*, and 401 KAR 61:045, *Existing oil-effluent water separators*. Under Section 2(1) of these rules, oil-water separators could be subject to the rule if they recover 200 gallons per day or more of petroleum products. The oil-water separators at the terminal recover significantly less than this amount of petroleum products, and are therefore not subject to the rules.

EMISSION AND OPERATING CAPS DESCRIPTION:

In order to ensure that the terminal remains exempt from the regulations applicable to major sources of criteria and hazardous air pollutant (HAP) emissions, including the Gasoline Distribution MACT (40 CFR 63 Subpart R), MPC has a Conditional Major permit. Terminal emissions are limited to less than 90 ton/yr volatile organic compounds (VOC), 22.5 ton/yr total HAP, and 9 ton/yr individual HAP. Monthly and rolling 12-month total emissions will be calculated. Emission calculations and supporting documentation will be retained at the terminal.

PERIODIC MONITORING:

See the permit for Specific Monitoring Requirements.

OPERATIONAL FLEXIBILITY:

None

CREDIBLE EVIDENCE:

This permit contains provisions which require that specific test methods, monitoring or recordkeeping be used as a demonstration of compliance with permit limits. On February 24, 1997, the U.S. EPA promulgated revisions to the following federal regulations: 40 CFR Part 51, Sec. 51.212; 40 CFR Part 52, Sec. 52.12; 40 CFR Part 52, Sec. 52.30; 40 CFR Part 60, Sec. 60.11 and 40 CFR Part 61, Sec. 61.12, that allow the use of credible evidence to establish compliance with applicable requirements. At the issuance of this permit, Kentucky has only adopted the provisions of 40 CFR Part 60, Sec. 60.11 and 40 CFR Part 61, Sec. 61.12 into its air quality regulations.